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(54) Portable pavement ramp with optional integral drainage channel

(57) A portable pavement ramp is pre-formed to suit a stepped site and adapted to be secured semi-permanently on site by means which avoid site disturbance and facilitate subsequent ramp removal. Preferably the ramp comprises one or more plastics mouldings adapted for abutment against a kerb, the moulding incorporating a drain channel in the underside thereof. The ramp may have detachable base members to vary the height thereof.

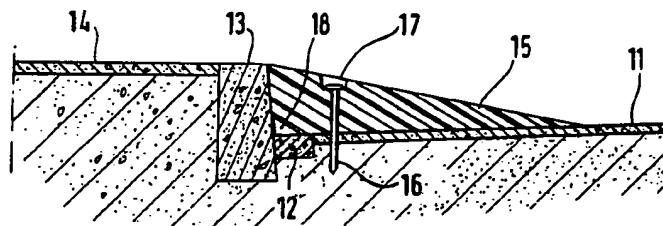


FIG. 2.

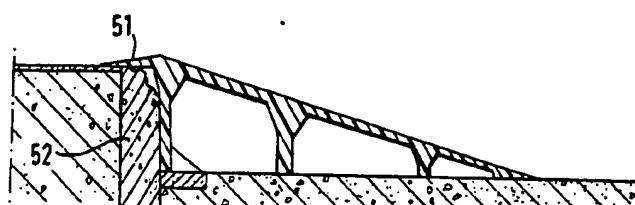


FIG. 6.

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2 223 256 A

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1/3

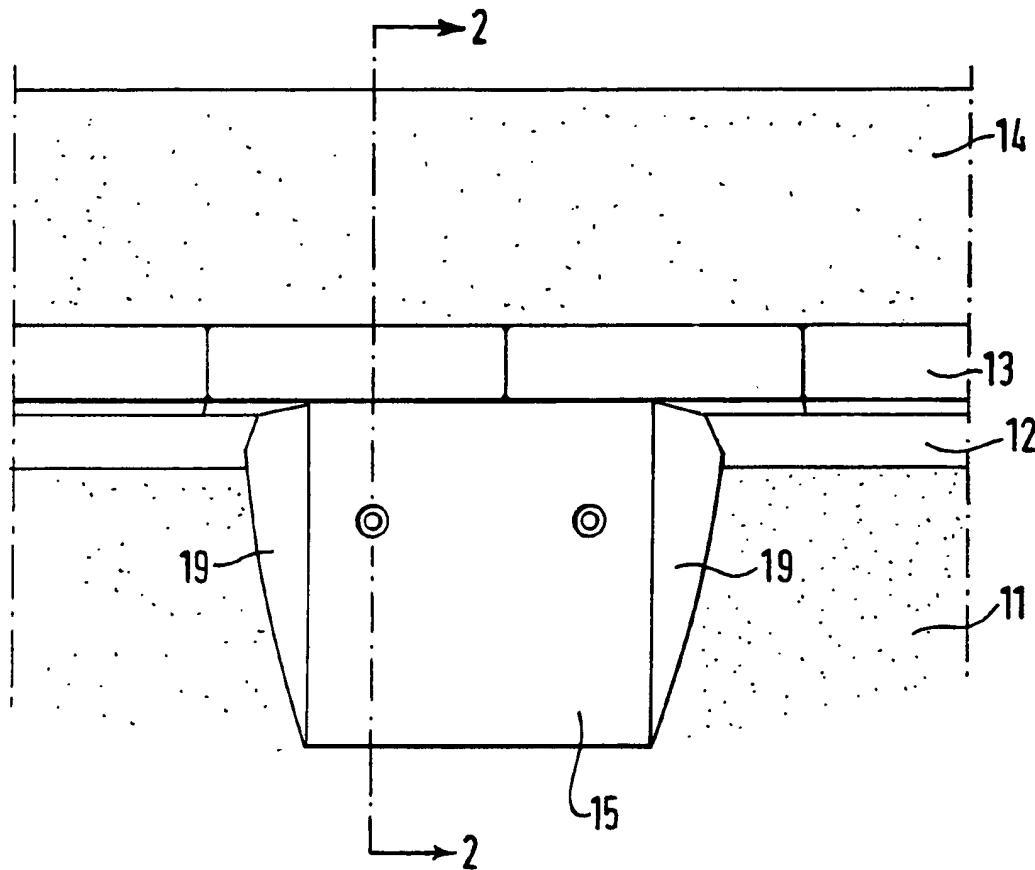


FIG. 1.

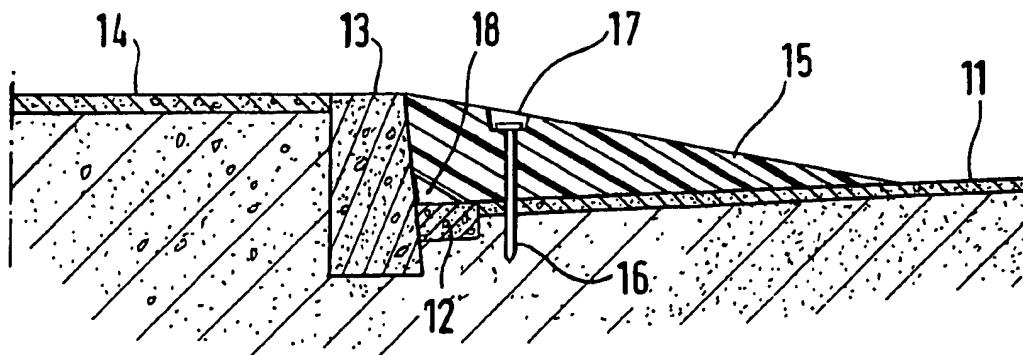


FIG. 2.

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2/3

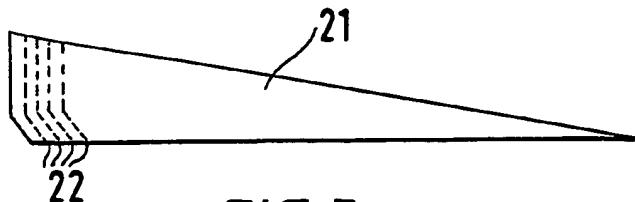


FIG. 3.

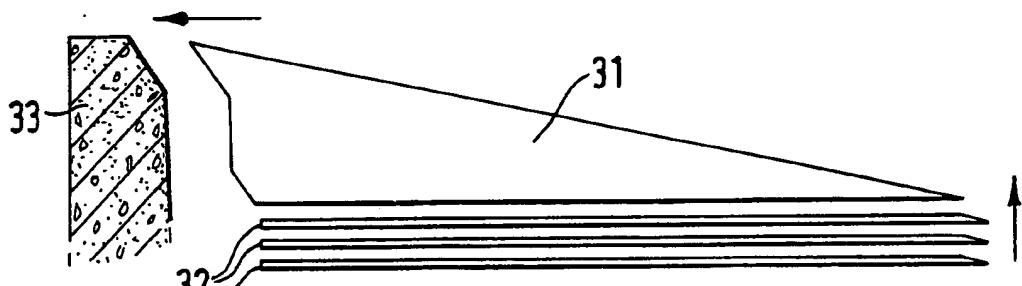


FIG. 4.

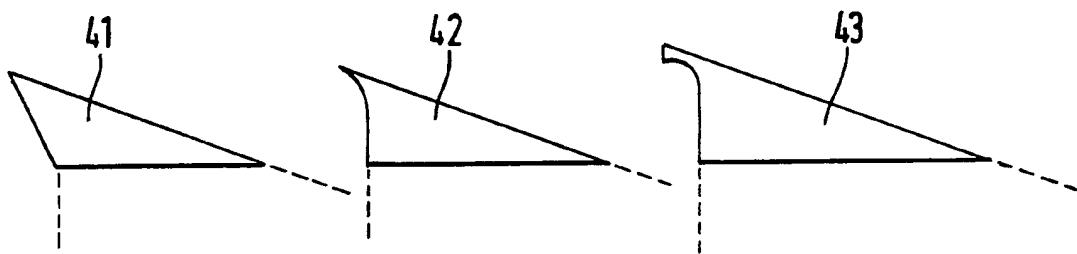


FIG. 5.

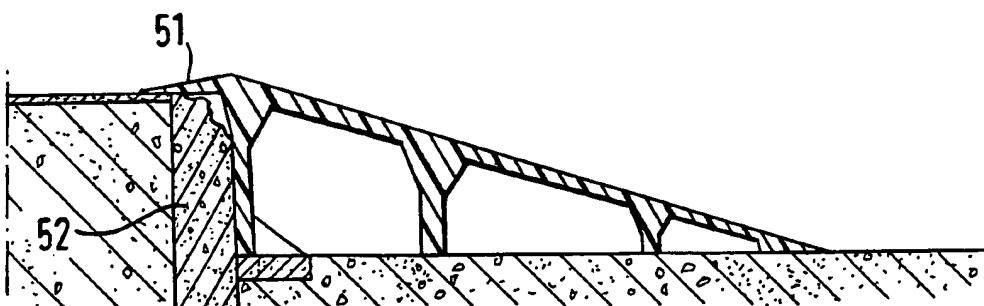


FIG. 6.

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3/3

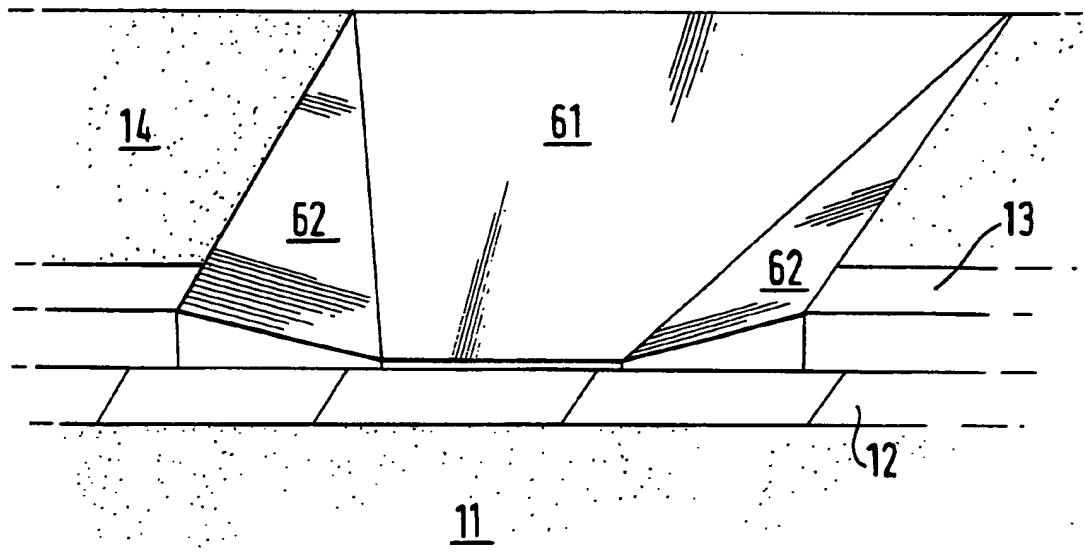


FIG. 7.

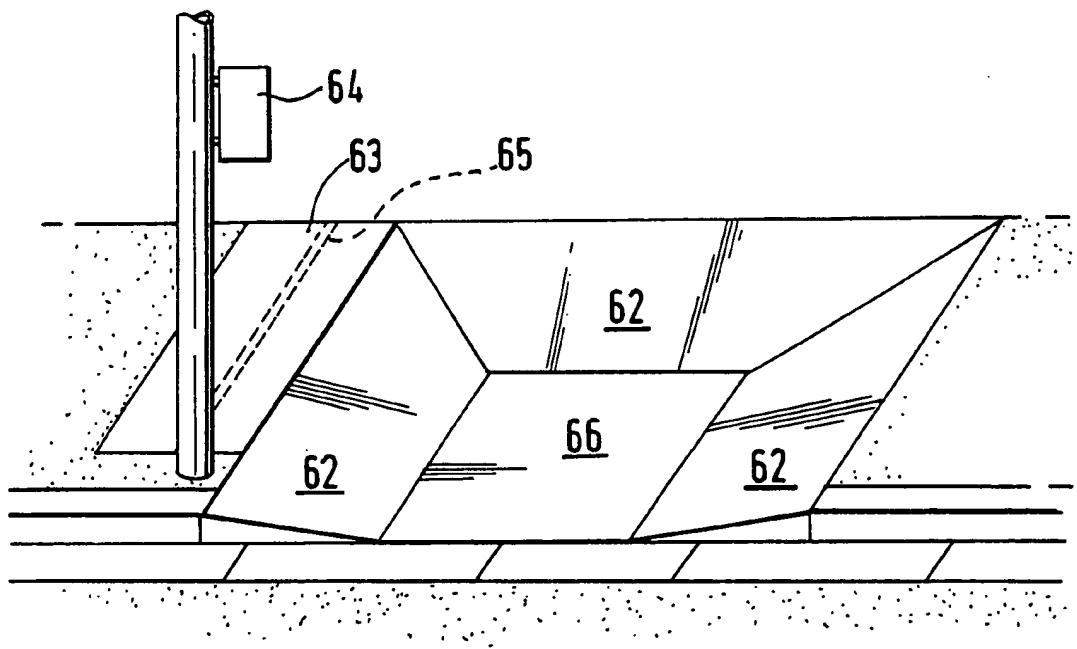


FIG. 8.

Pavement Ramp

This invention relates to pavement ramps.

Legislation in the United Kingdom requires that ramps be installed in public buildings to give easy access to disabled infirm or wheelchair bound visitors. Furthermore local authorities are required to install such ramps at street corners and other crossing places. Such ramps are however notoriously expensive when constructed as an afterthought because each ramp must be individually designed to suit the site and costs in excess of £2000 per ramp are not unusual. Much of this cost is in the labour necessary to construct a permanent ramp of, for example, concrete. Wooden ramps may be provided under cover but these again are expensive to construct and generally have a short life. The ramp designer must consider matters such as buried services, drainage and vehicle access; these are often obstructed by permanent ramps, and the ramp may subsequently be damaged or badly repaired following excavation to repair such services. Frequently access to buildings is reduced or obstructed whilst such ramps are built and the adjacent roadway or pavement may be obstructed. All these aspects have combined to limit the number of new ramps constructed and pressure group campaigning for better access have consequently been formed.

According to the invention there is provided a portable pavement ramp pre-formed to suit the site and adapted to be secured semi-permanently by means which avoid

site disturbance and facilitate subsequent ramp removal.

Such a ramp may avoid the need for site excavation and foundations and is easily removed for pavement re-surfacing, access to underground services or for replacement following ramp damage. The ramp can be installed very quickly without obstructing the roadway or pavement for more than a minimal time and it is the feature of rapid installation which reduces the cost very considerably.

In cases where the site itself is substantially undisturbed the ramp can be easily removed if some unforeseen factor renders the chosen position unsuitable, and the site requires no subsequent rectification or restoration work. This feature eliminates the need for costly site surveys and traffic flow studies which have hitherto added to the cost of installing pavement ramps.

A preferred embodiment of the invention provides a ramp of plastics material secured to the roadway by countersunk pins or adhesive and having an integral drain channel to avoid obstruction of the gutter. The ramp may be moulded of any exterior grade plastic suitable for the intended duty and may be hollow or reinforced. The ramp is preferably slightly flexible to conform to minor surface irregularities.

In one embodiment the ramp has sloping transverse edges to enable vehicles to ride over the ramp; such edges may be separate attachable mouldings. The ramp may be moulded of a brightly coloured plastic to and

identification, or be translucent with an interior light source.

The edge of the ramp adjacent the pavement is preferably shaped to suit the kerb profile and may have a projecting flap to cover kerbs with an unusual or damaged outer edge. The upper portion of the ramp may be removable to enable a variety of sections to be fitted to a standard base, and thus accommodate different kerb profiles.

The base of the ramp may be slightly concave to ensure that, when secured, the peripheral edge of the ramp makes good contact with the adjacent surface. The ramp may have spacers fitted to the base or upright face to enable the overall height of the ramp, or the orientation, to be adjusted to suit site conditions. In the alternative the ramp may be pre-marked or pre-cut to enable sections to be removed.

In an alternative embodiment the ramp may be inset into the pavement in the form of a dropped kerb. In this case minimal excavation is required but the advantages of easy removal and replacement remain. The ramp may be formed from several plastic mouldings joined together to suit the particular site.

The surface of the ramp may be embossed to give a particularly noticeable surface change to the visually handicapped. The surface may include directional embossing to lead a visually handicapped person to the road edge or to a push button control for traffic lights. The ramp may

incorporate metallic elements which can be sensed by detectors carried by the visually handicapped and such elements may indicate, for example, the road edge or a crossing control.

Relatively thin mats of plastic may be provided to extend the embossed surface over and adjacent pavement or road area and such mats preferably interlock or otherwise attach to the ramp to form a continuous surface. Such an arrangement may again be particularly advantageous for the visually handicapped.

Other aspects of the invention will be apparent from the following description of several preferred embodiments shown by way of example only in the accompanying drawings in which:

Fig 1 is a plan view of one embodiment of a pavement ramp according to the invention;

Fig 2 is a transverse section through the ramp along line 2-2 of Fig 1;

Fig 3 is an illustration of an alternative ramp with removable sections;

Fig 4 is an illustration of adjustable ramp;

Fig 5 shows several alternative capping pieces to suit different kerb profiles;

Fig 6 is a transverse section through an alternative ramp with hollow underside;

Fig 7 shows an inset ramp; and

Fig 8 shows an alternative inset ramp.

With reference to Figs 1 and 2 there is illustrated a roadway 11, gutter, 12, kerbstones 13 and pavement 14. Adjacent the kerbstones is a ramp 15 of moulded plastic material secured by securing pins or ragbolts 16 placed from above into recesses 17. A drain channel 18 ensures that the ramp does not block the gutter 12.

Optional radiused or chamfered side pieces 19 may be provided to allow vehicles to ride easily over the ramp and these side pieces may be moulded as a unit with the ramp or attached on installation by any convenient means such as co-operating lugs, snap fasteners and/or adhesives.

Whilst the ramp shown is of solid construction it could have air pockets or be generally hollow with stiffening ribs appropriate to the duty it has to perform.

The ramp may be adapted to shape of the kerbstone with simple tools such as saws and coarse files and may be provided with moulded marks and lines as guidance to the installer.

An alternative ramp 21 illustrated in Fig 3 has pre-marked sections indicated by dotted lines 22 which can be broken away to suit kerbs of different height. The pre-marked sections may of course be shaped to suit any standard kerbstone.

As a further alternative, the ramp 31 of Fig 4 has thin sheet like base sections 32 which may be added to increase the height of the ramp to suit the kerbstone 33. Since the variable height of a kerb is usually the

substantially perpendicular portion, the ramp can be preformed to the kerb outer edge contour as illustrated. The sections 32 may have a chamfered peripheral edge to avoid a step and may be progressively set away from the kerbstone both to give a smooth ramp and an increasing drainage aperture. The sections 32 could be clipped or glued in position or prevented from moving by an internal shoulder, the ramp being fixed through the sections by any suitable method. Furthermore the sections may themselves be tapered to angled to enable the ramp angle or orientation to be adjusted.

Other constructions are possible utilizing for example a separate upper section 41, 42, 43 to suit different kerb profiles (Fig 5) or a projecting flap 51 to cover an uneven or broken kerb 52 (Fig 6), or rounded side ribs to guide wheelchairs up the slope. Installation of the ramp can be quickly undertaken by placing the ramp in position, adjustment, for example by the use of spacers on the underside and rear edge, and fastening either by a suitable roadway adhesive, such as is used on motorways for temporary lane markings, or by securing pins rammed into the surface.

Should the ramp need to be removed, it may be prised off the surface, for example with a shovel; if necessary the fixing holes can be filled with a quick setting cement but otherwise the site is substantially undisturbed.

Another embodiment of the invention is shown in Figs 7 and 8. An inset ramp is provided which requires minimal

excavation prior to installation. Alternatively the ramp may be incorporated during pavement construction. The road 11 is bounded by gutter 12, kerb 13 and pavement 14 as before. The inset ramp is fixed by any suitable method and may be moulded complete or assembled on site from pre-formed sections having a suitable gradient. The ramp may for example comprise a standard centre moulding 61 and wing mouldings 62 set into a substantially straight sided excavation which is the depth of the pavement. The centre moulding may be trimmed to size on site as previously described.

The moulding may be embossed to provide an indication of the crossing point to the visually handicapped.

In the arrangement of Fig 8 a substantially flat sheet 63 is provided to indicate the presence of a crossing control 64. The sheet may incorporate a metallic element 65 whose presence can be felt by a detector carried by the visually handicapped. The element may be shaped or otherwise arranged to give particular information to the visually handicapped and may be easily and conveniently incorporated in the ramp or in sheet. The base of the ramp is constituted by a second sheet 66.

The sheet may also be embossed to give prior warning of a sheet crossing point to the visually handicapped and a number of standard sheets may be interlocked to increase the effective area of the crossing point or to provide directional information. The sheet 63 may be fixed to the

existing surface by any convenient means.

As a further alternative the ramp and adjacent moulded parts may include visual information such as street names or advertisements. Such information is easily moulded into plastics components and such components are cheap enough to be regularly replaced.

Although the invention has been described with reference to a moulded plastic ramp, the ramp could be manufactured by casting, fabrication or any other convenient method, and the material, although preferably lightweight, should be chosen to suit the duty. Composite constructions of glass fibre reinforced plastic or with concrete reinforcing may be appropriate in certain circumstances.

Whilst the invention is particularly directed to ramps for pavements adjacent roadways it is also suitable for use on private premises, in buildings or generally where a step must be turned into a ramp. The lightweight ramp is also suitable as a demountable attachment for invalid vehicles and wheelchairs to enable the invalid to climb kerbs.

CLAIMS:

1. A portable pavement ramp pre-formed to suit a stepped site and adapted to be secured semi-permanently on site by means which avoid site disturbance and facilitate subsequent ramp removal.
2. A ramp according to claim 1 and comprising a plastics ramp moulding having a substantially planar first ramp face.
3. A ramp according to claim 2 and further comprising a lateral ramp face at the side of the first ramp face.
4. A ramp according to claim 3 wherein the lateral ramp face is provided by a side moulding adapted to be attached to a ramp moulding incorporating said first ramp face.
5. A ramp according to any of claims 2-4 wherein the ramp moulding is adapted for abutment against a kerb, the moulding incorporating a drain channel in the underside thereof.
6. A ramp according to any of claims 2-5 and having attachable or detachable base members to vary the height thereof.
7. A ramp according to any of claims 2-6 and having a flexible lip projecting rearwardly from the upper edge of the ramp moulding.
8. A ramp according to any of claims 2-6 and having an attachable upper edge moulding adapted to suit the step profile of the site.
9. A ramp according to any of claims 2-8 and incorporating a metallic element adapted to activate a sensor for the

visually handicapped.

10. A ramp according to any preceding claim and including a surface pattern adapted to be sensed by the visually handicapped.

11. A ramp according to claim 10 wherein the surface pattern is adapted to give directional information.

12. A portable pavement ramp substantially as described herein with reference to the accompanying drawings.